REMARKS

Reconsideration is requested.

Claim 12 has been canceled, without prejudice. Claims 17-76 have been added. Claims 1-11 and 13-76 are pending. No new matter has been added.

Claim 1 has been amended in the definition of the reducing step to indicate that the reducing is performed by the use of a reducing agent. This is supported by the present patent application as filed for instance at claim 7.

Claims 8 and 9, have been amended in order to correct a clerical error in the identification number of the formula to which they refer.

Claim 10 has been amended to recite one type of phosphine and to correct its dependency.

New claim 17 is added to recite a particular embodiment of the invention wherein the reducing agent is selected from the group consisting of hyperbranched polymers and dendrimers carry terminal thiol functions, having formula (I). The subject matter of this claim is supported by the specification as originally at pages 4-5.

New claims 18 and 19 are directed to particular conditions of use of said reducing agent. Their subject matter is supported by the specification at page 12, lines 19-23.

New claims 20 and 21 are supported, for example, by original claims 10 and 11.

New claim 22 is directed to another particular type of reducing agent i.e. a thiol present in an aqueous solution whose pH is adjusted with an agent selected from a group consisting of different compounds including polyquaternary ammonium

hydroxides. The subject matter of new claim 22 is supported, for example, by the specification at the paragraph bridging pages 6 and 7.

New claim 23 is directed to a particular type of polyquaternary ammonium hydroxide having formula (III). This is supported, for example, by the specification at page 7.

New claim 24 is directed to a particular compound of formula (III). This is supported, for example, by the specification at page 11, lines 24 to 26.

New claim 25 is directed to a second type of polyquaternary ammonium hydroxide having formula (IV). The subject matter of this claim is supported, for example, by the specification at pages 8 and 9.

Claims 26 to 33 are directed to specific compounds of formula (IV). The subject matters of those claims are supported, for example, by the specification at page 10, line 18 to page 11, line 12.

New claim 34 is directed to a third type of polyquaternary ammonium hydroxide having formula (V). This is supported by, for example, the specification at pages 9 to 10.

New claims 35 to 37 are directed to particular compounds of formula (V). Their subject matters are supported, for example, by the specification at page 11, lines 13 to 23.

New claim 38 corresponds substantially to the subject matter of now-canceled claim 12, but with cancellation of the second range previously recited in former claim 12.

New claim 39 has been added in order to recite the second range recited in now-canceled claim 12.

New claim 40 corresponds to former claim 1 in combination with former claim 5 which is believed to be allowable in view of the Examiner's comment that claim 5 would be allowable if rewritten in independent form. See, page 7 of the Office Action dated December 30, 2002 (Paper No. 3).

New claims 41 to 76 are similar to new claims 2 to 4 and 6 to 38, but depend from new claim 40, and are believed to be similarly allowable.

No new matter has been added.

The Examiner's indication that claims 5 and 6 contain allowable subject matter is acknowledged, with appreciation. See, page 7 of the Office Action dated December 30, 2002 (Paper No. 3). As noted above, claims 40-76, at a minimum, are believed to be allowable and an indication of the same in the Examiner's next communication is requested.

To the extent not obviated by the above, the Section 112, second paragraph, rejection of claims 1-16 is traversed. Reconsideration and withdrawal of the rejection are requested in view of the following comments.

Claim 1 has been amended to specifically include the use of a reducing agent. Claim 9 has been amended to correct an inadvertent typographic error and provide proper antecedent basis for the recited formula. The dependency of claim 10 has been corrected. Claim 12 has been canceled, without prejudice and, as noted above, rewritten as new claims 38 and 39. With regard to the recitation of nucleofugic, the applicants respectfully submit that one of ordinary skill in the art would appreciate the metes and bounds of the claims, in view of the specification as the specification provides a functional definition of the recited term at, for example, page 13, lines 18-23

wherein the function is described as including a function which is reactive and which, upon reaction with nucleophilic functions (in this particular instance sulphydryl functions-LH), permits the formation of a covalent bond. Moreover, the specification provides examples of known nucleofuges. Accordingly, one of ordinary skill in the art, in view of the common knowledge of the art and information contained in the present specification, will be able to appreciate the metes and bounds of the presently claimed invention.

Withdrawal of the Section 112, second paragraph, of claims 1-16 is requested.

The Section 103 rejection of claims 1-4, 7, 11, 13 and 16 over Cunningham (U.S. Patent No. 3,892,845) is traversed. Reconsideration and withdrawal of the rejection are requested in view of the following distinguishing comments.

Cunningham discloses a method and a composition for removing the colour from coloured keratin fibers. This method utilises a combination of a dye reducing agent and a keratin reducing agent.

According to the paragraph bridging columns 1 and 2, the reducing agent is used to break the covalent disulfide linkage involved in the helix formation of the keratin fibers and thus to break the helix formation to allow the dye residues which are trapped in the helix to escape. The cleavage of the covalent disulfide linkages disengages the helix formation and in turn causes the swelling of the fibers material and allows for a more intimate and thorough contact of the dye reducing agent with the material.

Accordingly, the Cunningham patent, the target is the dye, and the keratin reducing agent is only used to permit the dye reducing agent to reach its target.

Consequently the cited patent neither discloses nor suggests the possibility of using a reducing agent to generate reactive sites on the keratin fibers for covalently

fixing at least one active compound. Moreover, this patent whose purpose is to break the helix formation 1) to release the trapped dye and 2) to permit the penetration of the dye reducing agent, does not suggest using a reducing agent for breaking the disulfide linkage only on the surface of keratinous hair fibers to a depth of less than 10 µm. *A fortiori,* this patent does not suggest that breaking disulfide linkages and thus generating reactive sites only on the surface of the keratinous fibers would permit reduction of damage imparted to the hair fibers and to obtain a satisfactory result.

Withdrawal of the Section 103 rejection of claims 1-4, 7, 11, 13 and 16 over Cunningham is requested.

The Section 103 rejection of claim 14 over Cunningham in view of Bailey (WO 96/03966), is traversed. Reconsideration and withdrawal of the rejection are requested in view of the following distinguishing comments.

The teaching of Bailey fail to cure the deficiencies of Cunningham noted above. Specifically, Bailey discloses a hair styling and conditioning process, an embodiment of which consists in applying to the hair a composition containing a reducing agent and then in putting into contact the treated hair with a compound having an electrophilic group and at least a hydrophobic group.

Bailey actually discloses the use of a reducing agent in order to generate reactive functions capable to react with another reactive compound, however Bailey neither discloses nor suggests to perform a reducing step to generate reactive functions only at the surface of a fiber. *A fortiori*, Bailey is not suggestive of generating reactive functions only on the surface of the hair fibers to permit reducing the damages imparted to the treated hair fibers while obtaining nevertheless satisfactory results.

Withdrawal of the Section 103 rejection of claim 14 over Cunningham in view Bailey is requested.

The Section 103 rejection of claim 8-12 and 15 over Cunningham in view of Shimura (EP 0331 750), is traversed. Reconsideration and withdrawal of the rejection are requested in view of the following distinguishing comments.

The deficiencies of Cunningham are noted above. Shimura fails to cure the deficiencies of Cunningham. Specifically, Shimura discloses an agent and method for treating, for instance, dying of wool fibers. More precisely, Shimura discloses a method using hydroxyalkyl phosphines, and expressly states that Shimura assumes that the process for treating the wool fibers involves the cleavage of the –S-S- bonds of the cystine present in the proteins of the wool fibers by the phosphine compounds. Shimura further indicates that, if dyeing is effected in a bath, the phosphine is oxidized with the progress of the cleavage of –S-S- bonds, while the pH of the bath is decreased, whereby the absorption of the dye used mildly starts and then gradually progress, thus permitting the obtainment of a constant dyeing (see page 6, lines 4 to 16).

Accordingly, Shimura does not suggest a method for treating keratinous fibers, comprising generating reactive sites by reduction, and covalently fixing on said reactive sites at least one active compound. Moreover, Shimura which mentions, with the use of a phosphine, a gradual progression permitting the obtainment of an homogeneous dyeing does not suggest, but on the contrary would discourage one of ordinary skilled in the art from using a phosphine for obtaining reduction limited to the surface of the fibers while leading to satisfactory results.

Withdrawal of the Section 103 rejections of claims 8-12 and 15 over Cunningham in view of Shimura is requested.

The cited art, individually or in combination, fails to disclose or suggest hair keratin treatment wherein the keratin fibers are reduced only on their surface, i.e., at a depth less than 10 μm. Consequently, the presently claimed invention is submitted to be patentable over the cited art.

Attached is a Terminal Disclaimer to obviate the rejection of claims 1-16 under the judicially created doctrine of obviousness double-patenting over claims 1-15 of U.S. Patent No. 6,361,767, to advance prosecution. While the rejection is not believed to be appropriate, the attached is submitted to advance prosecution. Withdrawal of the rejection is requested.

Acknowledgement of receipt of the certified copy of priority document in the parent application Serial No. 09/380,459, in the Examiner's next Action, is requested.

The claims are submitted to be in condition for allowance and a Notice to that effect is requested. The Examiner is requested to contact the undersigned if anything further is required in this regard.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____
B. J. Sadoff
Reg. No. 36,663

BJS:plb
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100